
Field identification of the brood-parasitic whydahs *Vidua* and Cuckoo Finch *Anomalospiza imberbis*

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Summary: The whydahs *Vidua* and Cuckoo Finch *Anomalospiza imberbis* are brood-parasitic finches that use other species of birds to rear their young. Whydahs use estrildid finches; Cuckoo Finch use the grass-warblers *Prinia* and *Cisticola*. The whydah males in breeding plumage have long tails, the females are streaky brown birds, and the juvenile plumage often closely resembles the host young. Most whydahs mimic the songs of their host species. The songs are helpful in identifying the species of paradise whydahs in West Africa, but the male breeding plumages are more distinctive; females also can be distinguished. Cuckoo Finches are not known to mimic host song. Males change from season to season due to wear in plumage from streaked dark brown to unstreaked yellowish above, females are similar to *Euplectes* bishops, and the young resemble the plumage of the host young.

The whydahs *Vidua* spp are brood-parasitic finches and are widespread in Africa from the Sahel through the open woodlands. The common name whydah and the genus *Vidua* have been used also for the long-tailed nest-building euplectine finches such as the Collared or Black Widow (or widow-bird, or whydah) *Euplectes ardens*, and there is little consistency in fieldguides in the use of widow and whydah. *Vidua* means 'widow', as in the Portuguese 'viúva', and derives from the long tail of the males, which is supposed to resemble a widow's black train. 'Whydah' is a variant of 'widow'.

Since the generic name *Vidua* Cuvier, 1817 was first used for Pin-tailed Whydah *V. macroura*, the name is appropriate for these birds. The whydahs also include the short-tailed indigobirds (which the author described in a previous paper in this journal)²⁹. The bird most closely related to the whydahs is the Cuckoo Finch *Anomalospiza imberbis*. Like the whydahs, it lacks a family life of its own, and depends on another species, the 'host,' to provide parental care; the individual birds that give the care are the 'fosterers'.

The whydahs lay their eggs in the nest of their host species, and their foster parents incubate the eggs and rear the young whydahs along with their own brood. Although each species of whydah can use several different estrildid finches as hosts for their young, most whydahs lay their eggs in the nests of one species. A male mimics the songs of this specific host species as well as singing songs typical of its own local population. Although their songs are useful in distinguishing the species of paradise whydahs, the whydahs are most readily distinguished by their plumage and the colours of bill and foot, and both males and females are distinctive in their appearance.

In addition to the adult male's mimicry of his host's songs, the young whydahs match the mouth patterns and colours and the begging calls of nestlings of their host species. The mouth colours and pattern of young Paradise Whydahs closely match the mouths of young Melba Finch *Pytilia melba*, and young Pin-tailed Whydahs *V. macroura* match the mouth of their waxbill *Estrilda* hosts. Other whydahs also mimic the nestling mouths of their host species, although there may not always be differences between whydah species. The nestling hosts, for instance, of Togo Paradise Whydah and Exclamatory Paradise Whydah have similar mouths. Juvenile plumage in some whydahs also resembles the host young. The unmarked grey of young paradise whydahs is especially like the appearance of young pytilia finches, while the golden plumage of young Straw-tailed Whydahs is similar to that of young Purple Grenadiers *Granatina ianthinogaster*.

Most whydah species are well known and the males can be readily identified in the field. However, the paradise whydahs are not as well known and even breeding males can be difficult to distinguish in West Africa, where there is a question about species limits. Males have similar breeding plumages but the length and shape of the tail, wing length, and the intensity of the colour of the nape and underparts varies among species and subspecies. Female whydahs often can be distinguished by their head pattern and the colours of bill and feet, and even female Cuckoo Finches can be distinguished from the similar female bishops. The following notes are based on my field observations, museum studies and observations of captive aviary birds, and on published material especially from the last 30 years.

Pin-tailed Whydah

Pin-tailed Whydah is the most widespread of its genus. Males in breeding plumage are black above with white on the rump and wing, a white face and collar, white below, and a tail with the four central feathers black, narrow and longer than the rest of the bird. The short outer-tail feathers are white on the tips and inner margins. The bill is red and the feet are black.

Females are streaky brown birds with a well-defined dark brown stripe on the side of the crown and on the face; the central crown and the supercilium are rufous to buff. Above they are rufous buff with blackish streaks, below they are whitish to buff with dark streaks on the breast. The tail has white inner margins to the three outermost feathers, which can be seen in flight or from below. The bill colour changes from red in the non-breeding season to black during the breeding period. First-year males are like females, but with a more boldly patterned head. There is a whitish, not buff, stripe on the crown, and the lateral crown stripe is black not brown, while the bill is red in all seasons. Juveniles are distinctive in being unmarked mouse brown with paler cheeks, white throat and pale buff below. The bill is black then turns reddish, and the feet are black.

Males display over an area of a few shrubs and each male is visited by several female whydahs. An old regional name is 'King-of-Six', which describes the polygynous mating of a successful male^{1,3,25,30,31}. The male song is a tinny tune with rapid runs of monotonous notes 8–10 per second, and a varied series of notes that jumble around in pitch; both males and females also have a distinctive harsh chatter. No song mimicry of the host has been noted. In courtship the male flies at the female while she feeds near his singing site, bounces in flight around her and flaps the long tail feathers, flying in a circle. At the end of such a display session, which can last for as long as a minute, the male flies back to his song perch, where the female joins him and they mate. Young males lacking a breeding plumage show the same behaviour towards a female.

Pin-tailed Whydahs are widespread and occur in grassy and open shrubby habitats through most of sub-Saharan Africa and on the islands of Fernando Po and São Tomé in the Gulf of Guinea and in the Comoros Islands. They parasitise several waxbills, including Common Waxbill *Estrilda astrild*, Orange-cheeked Waxbill *E. melpoda*, Black-rumped Waxbill *E. troglodytes*, Red-rumped Waxbill *E. rhodopyga* and Sooty Waxbill *E. melanotis*. Goldbreast *Amandava subflava* may also be a host but the observations are based on unidentified plain white eggs and not on

nestlings or young. The mouth pattern of young Goldbreast is unlike that of the other waxbills.

Bronze Mannikin *Spermestes cucullatus* is sometimes reported as a host, but the claim is based on unidentified eggs in mannikin nests or on juvenile whydahs being present in flocks of mannikins^{10,16}. However, the young whydahs may only join these flocks after they become independent from their waxbill hosts. Nestling and juvenile whydahs have a mouth pattern like their waxbill hosts. The base of the upper mandible forms a white shallow raised flange in the form of a 'U' and the two ends of the U each meet a broad papilla on the lower bill, so each side of the bill has three distinct gape ridges, like those of the young of the waxbill hosts. The white of these gape ridges is outlined in black. The palate is pale pinkish and the palate has a ring of five black spots.

Steel-blue Whydah

Steel-blue Whydahs *V. hypocherina* are glossy blue-black in male breeding plumage. The two central pairs of tail feathers are longer than the rest of the bird and narrow, like those of Pin-tailed Whydahs. The wing lining is white (light grey, or grey and blackish, in indigobirds), and the wing has a broad white band seen in flight from below, formed by the inner webs of the secondaries (a pale brown band occurs in some indigobirds). The flanks have a white spot normally concealed by the wings and back feathers, as is the white spot in the males of all other whydahs and the indigobirds. In flight this is conspicuous like the white of the flight feathers. The bill is smaller than in other *Vidua* species. Bill colour varies with the season and in breeding males it is white. Museum specimens sometimes have a red bill, due to post-mortem change, and males in non-breeding plumage have light grey or horn-coloured bills. The foot colour is grey.

The females resemble female indigobirds, with stubbier grey bills darker above than below, a more distinct eye-stripe, longer tail, and a white edge on the inside and tips of the rectrices and a narrower white edge on the outer margin, although this is only 1 mm in an unworn fresh feather. The white on the inner margin of the rectrices is visible in flight. In contrast, female Pin-tailed Whydahs have a wide strip of white (half the feather width) on the rectrices and their tail from below is more white than dark. The tail of female Steel-blues is dark with white trim. The back streaking and breast colour are the same in Steel-blue Whydahs and indigobirds. The face has a pale crown stripe and supercilium, less distinct than in Pin-tailed Whydahs of worn plumage at the same season, and female Pin-tails have a larger, thicker bill, black in the breeding

season and red in the non-breeding season. The feet are pale grey in the Steel-blue Whydahs (orange in some indigobirds).

Juveniles are indistinctly streaked and have a light streak above the eye, a narrow white margin to the tail, and dark grey cheeks that contrast with the rest of the face, like the dark cheeks of their host species, Black-faced Waxbill *Estrilda erythronotos* and Pink Black-faced Waxbill *E. charmosyna*. The whydahs parasitise these waxbills^{21,22}.

In behaviour a male sings from a high perch. If a female visits, the male courts her by flying to the ground singing and when she joins him he does a quick jump over her, as if pricked by a pin, and flutters his wings and bobs the tail in the short flight. He repeats the display or feeds with her, then leads her in flight back to his perch.

Songs are long bouts of short twitters and chatters with little obvious pattern. In 1976 north I tape-recorded all of the following at Lake Victoria in Kenya: **1.** a repeated *chiff*, **2.** similar notes like *tik*, *chuff*, *wehezzzz* and so on, 1–4 notes a second, but not a series of complex songs as in the indigobirds, that vary and drop in pitch and sound plaintive like swallow or canary calls, **3.** a rapid *jejejejeje* that sounds like a begging call of fledged Red-cheeked Cordon-bleu *Uraeginthus bengalus* (other waxbills may have similar begging calls), **4.** an alarm chatter of the cordon-bleus, **5.** songs of the cordon-bleus.

Whether some males mimic the distinctive two-part whistles and songs of their host, the Black-faced Waxbill, is unknown. Cordon-bleus are not known to be hosts, but the distribution of Steel-blue Whydahs lies within their range (cordon-bleus have a much larger distribution than the whydahs) and the two occur locally together, so some whydahs may parasitise this finch, whereas others use the waxbills.

Shaft-tailed Whydah

Shaft-tailed Whydahs *V. regia* live in semi-arid habitats of thorn scrub in southern Africa, in drier habitats than other parasitic finches, and they also live together with indigobirds, Pin-tailed Whydahs and Paradise Whydahs in acacia bush and other scrubby habitats. They are common in some years in the Kalahari National Park in South Africa and Namibia, on Springbok Flats in eastern Transvaal, and occur into southern Mozambique and in Zambia occasionally as far north-east as Lochinvar National Park, where we saw them only twice in the 1970s.

Males in breeding plumage are black above, pale rusty brown below, and have a rusty collar over the nape. The tail is short and pale; the four central feathers are long and slender black shafts less than 2

mm wide with a black flag on the tip, wider than the tail of Pin-tailed Whydahs. The bill and feet are bright orange. Males sing on thorn trees and have distinct harsh song types, a harsh skeezing chatter, and a series of begging calls, distance alarm trills, and warbling songs with rising whistles at the end like their host Violet-eared Waxbills *Granatina granatina*. In courtship display the male hovers over a female as she visits him at his call-site. They also display while holding onto their perch while they flap the wings².

Females have the crown streaked rusty with a darker brown stripe on the side, the supercilium and face are paler; the back is light rusty or buff with dark brown streak, and below the plumage is light buff to whitish and unstreaked. The bill is larger than in the indigobirds, orange in the breeding season and changing to paler orange and brown in the non-breeding season. The feet are orange. Males in non-breeding plumage are streaky brown like females, more boldly marked on the head, and they have orange bills and feet. Juveniles are brown with indistinct streaks above, the head is unstreaked, and the underparts are rich rust, much like the juvenile host waxbills^{17,33}. The bill is black but becomes orange and brown when the birds begin moult into the streaky plumage.

In the central Transvaal, a third of the nests of Violet-eared Waxbills were parasitised by Shaft-tailed Whydahs. The young whydahs can be distinguished from the waxbills, which have the same mouth pattern, by their larger size and, when feathered, by their brown not blue rumps, narrow bill (nostrils 3 mm apart in the whydah, 4 mm in the waxbill), browner, less reddish crown, white not light brown undertail coverts, and brown not blue tarsi³³.

Straw-tailed Whydah

Straw-tailed Whydah *V. fischeri* is the East African counterpart of Shaft-tailed Whydah, both in plumage and in its ecological association with a purple-and-brown *Granatina* waxbill as a host. Males in breeding plumage are black above with a bright yellow crown and forehead, the face and chin to upper breast are black, the rest of the upperparts are yellowish buff. The tail is short except for four grass-like central rectrices which are longer than the rest of the bird, 2–3 mm broad with fine barbs along the shafts, and coloured pale straw. The males quiver the flexible tail in song and flop it in display to a female while they hold on to their perch and sing. They also give this display when there is no female in sight. The bill and feet are bright orange.

Females are streaky brown above, and the head is nearly unstreaked or has a pale eye-stripe, dark rufous in fresh plumage but wearing and fading to rust or buff

especially on the crown and forehead. The plumage is more distinct later in the breeding season, when the nape is still distinctly streaked, but the rusty tawny head has lost the dark tips to the crown feathers. The face is pale, without a distinct stripe, nearly the same sandy whitish colour as the breast. The bill and feet are orange. Males in non-breeding plumage are streaky brown like the females, but more boldly marked.

Juvenile plumage is rusty brown, unmarked or with indistinct streaks on the back. The bill is black and the feet are brown and change to orange when the young begin to moult. The plumage colour is nearly identical to that of the host Purple Grenadier *Granatina ianthinogaster*. The mouth pattern also matches that of the Purple Grenadier. The young whydahs have a more stout bill and a shorter, more square tail than the juvenile hosts. In contrast to most parasitic finches they are smaller than their host young by the time of fledging. In Tanzania, more than half of the host nests locally are parasitised by Straw-tailed Whydahs. The young whydahs grow up together with the host young and fledge at 16 days^{17,19}.

The song is 4–5 thin notes with a trill and often ends with high, rising whistles, which mimic the songs of the Purple Grenadier. Each male has several variations of song, and the songs of neighbouring males are identical. The alarm note is a sharp *tseek* and these notes are often run together in a chatter.

Paradise Whydah

The Paradise Whydahs *Vidua paradisaea* of southern and East Africa are remarkable in the breeding plumage of the male, with a long, pointed tail that is 2–3 times the length of the body. The two central tail feathers are long, broad, and twisted longitudinally around 90° and are prominent in a lateral view of the bird. Males are black above, maroon chestnut on the breast and buff on the belly. The band around the nape is golden, fading with the season to straw colour. The wing is 74–81 mm.

Male whydahs regularly give aerial displays twice a day, around 10.00 hr and again at 15.30 hr, with each display period lasting about 20 minutes. This clockwork-like behaviour I have watched at Lochinvar National Park in Zambia, Springbok Flats and Merensky Nature Reserve in the eastern Transvaal, and Lake Baringo in Kenya. Several males display in flight within sight at the same time and each appears to keep to a separate territory, although an intruder sometimes streams over it as the resident male accompanies him from the area, flying below as he remains between the intruder and the trees where the females visit and mate.

In flight display the male flies slowly round with fast wingbeats at a height of 20–100 m over an area of 50–100 m radius, then cruises slowly across the territory, and gives a whistled *whee-bew* call as he flies. In the cruise phase the central pair of rectrices are raised vertically at nearly 90° to the axis of the bird, and the longer second pair that envelop them trail behind the bird. After a half minute or so the male descends as he folds his wings to the sides then flaps again, and perches in the top of an acacia. There he gives a long, sizzling, warbling song of 10–12 seconds that mimics the song of the Melba Finch *Pytilia melba*^{11,14,21}. After a minute or so of singing, if a female does not fly to him, he flies up at a sharp angle, rustling his tail feathers, and ascends to about 30 m, then he repeats the flight display and *whee-bew* call. Flight display has not been seen in other species of paradise whydah, perhaps because their tails are less suited for aerial display (pers obs)¹⁹.

Females are streaked on the back, and have a streaked head with a buffy whitish mid-line and a broad blackish band on either side of the crown, a whitish supercilium, and a black C-shape vertical mark on the face. The tail is longer than in Pin-tailed Whydahs and rounded with the central feathers slightly longer than the outer ones. Female paradise whydahs in southern and east Africa with a wing of 76 mm or smaller (range, 73–79 mm) are this species. Bill colour is black, sometimes lighter grey on the undersides of the base of the lower mandible, and becomes paler in the non-breeding season²³. The feet are blackish or dark brown. Males in non-breeding plumage have the black crown stripes and face marks broader and more distinct than in females, with a more whitish less buffy head stripe, and they are more streaked with blackish on the breast.

Juveniles match the mouths of the Melba Finch with a whitish gape flange lined with two black spots on the inner margin above and below, a large elongated violet spot at the either side of the back palate, and a single black spot on the hard pinkish palate (pers obs)^{14,17,19}. Juvenile Paradise Whydahs are distinguished from Broad-tailed Paradise Whydahs where they occur together by the black spot on their palate, and are smaller, as noted for females.

In Tanzania, Nicolai found more than half of the nests of Melba Finches were parasitised by the whydahs, often with more than one whydah egg or chick in a nest¹⁹. The nestling whydahs have a begging call like that of the nestling hosts, but as the young develop the calls become more different. The young whydahs were able to get more than their share of food by aiming higher in begging, when fed by captive foster Striated Munia *Lonchura striata*. In

nest where the Melba Finch itself fed the young, there was no difference in feeding the two kinds of young.

In central Transvaal, Skead³³ found that 28 per cent of Melba Finch nests were parasitised. Newly hatched whydahs can be distinguished from Melba Finch by the upper tubercles being larger than the lower ones, a darker skin, a grey-white not sandy-white down, and a broader more conical bill. Older chicks are distinguished by their larger size, uniform grey-brown plumage, brown not red rump, and six rather than eight scales on the tarsus.

Broad-tailed Paradise Whydah

Broad-tailed Paradise Whydahs *V. obtusa* are usually found in less arid areas than Paradise Whydahs, as are their hosts, the Orange-winged Pytilia *Pytilia afra*. They live in miombo woodlands of south-central Africa. The tail of breeding males is shorter, broad from the base to near the tip. With a width of 40 mm it is broader than the body of the bird when seen from the side. The nape is dark coppery rufous, the chestnut breast is darker and the dark colour extends further onto the belly. Wing length is 81–87 mm. The bill is black and the feet are blackish or dark brown²³.

Females usually have grey rather than black bills, although sometimes the upper mandible is black, and the bill is sometimes pinkish below. The feet are grey. The upperparts are striped, the head having a whitish crown stripe, bordered by a blackish lateral crown stripe and a whitish supercilium, but lacks the distinct vertical marks on the side of the face. Females in fresh plumage have a more strongly marked facial pattern than those with worn plumage, although none is as strongly marked as the other paradise whydah species, which breeds at about the same time. Broad-tailed Paradise Whydahs have longer wings (Zambia, 77–84 mm), and all females with a wing of 80 mm or longer are this species. First-year males and adult males in non-breeding plumage are like females but more strongly marked with the black crown stripes and face marks broader and more distinct, more whitish and less buffy head stripes, and more blackish streaking on the breast. The bill is paler in the non-breeding season^{23, 28}.

The nestlings and juveniles have a mouth whose colour is like that of their host species, the Orange-winged Pytilia. In pattern it resembles that of the Melba Finch, with the purple spots but no black spot on the palate^{14,17}. The plumage is unmarked grey, like that of the Paradise Whydahs. Three juvenile whydahs that I netted at Lochinvar National Park, Zambia, and suspected to be this species, on the basis of wing length (80 mm or greater) and the absence of a black spot on the palate, were kept in captivity for two years

and developed the plumage of Broad-tailed Paradise Whydahs.

Calls of these whydahs include a chatter like that of the previous species. The mimicry calls of the Orange-winged Pytilia include a harsh contact note, and a song with a rattling note and a series of flute-like descending whistles, followed by a crackling note¹¹. The most frequently heard note is a simple descending flute-like whistle¹².

Both the Broad-tailed Paradise Whydah and Orange-winged Pytilia were common in miombo woodland at the Zambezi's source in north-western Zambia²³. The whydah occurs together with the more abundant Paradise Whydah at Lochinvar National Park, where both species of pytilia were also seen. However, Orange-winged Pytilia was less common. Both whydahs and both pytilias are common near Monkey Bay and Rumphu in Malawi (pers obs)²³. Broad-tailed Paradise Whydahs also occur at Mikumi National Park, while near Iringa in Tanzania they occur with Paradise Whydahs¹⁹. The species is known also from Zaire south through eastern Zimbabwe and locally in northern Transvaal, but they rarely turn up in Kenya. They breed mainly from January–July, a later breeding season than most finches in the same areas. They start at end of the rains and continue well into the dry season⁴. In north-west Zambia I saw young whydahs being fed by adult Orange-winged Pytilias in mixed broods as late as mid-September²³.

Sahel Paradise Whydah

Sahel Paradise Whydah *V. orientalis* is the West African counterpart of Paradise Whydah, both in plumage and in their association with the Melba Finch as nesting host. The tail is shorter and of equal width almost to the tip, instead of tapering to a point. The males also are smaller (wing 72–80 mm). The nape is pale straw colour in the east (subspecies *V. o. orientalis*, Sudan to northern Cameroon) and dark brownish red in the west (subspecies *V. o. aucupum*, northwestern Nigeria to Senegal). The bill is black, while the feet are brown to grey.

Females have a grey bill and feet. They lack the distinct vertical marks on the side of the face that are seen in *V. paradisaea* in east and southern Africa. Females are 71–74 mm in wing length²⁸. The juveniles look like the juveniles of Paradise Whydah but are smaller.

The mouth colours of young *V. orientalis* are like those of young Melba Finches, although they have not been studied in detail. Songs of Melba Finches in West Africa are shorter and more simple than those of east and southern African birds, and the mimicry songs of the Sahel Paradise Whydahs are correspondingly



short^{18,24}. The whydah in Senegal is this species, based on the evidence of specimens from Richard-Toll south to Bao Bolou near The Gambia.

Exclamatory Paradise Whydah

Exclamatory or Uelle Paradise Whydah *V. interjecta* is widespread in the Guinea woodland region of West Africa, from The Gambia and Mali to southern Sudan and the Uelle region, where Chapin described it as a new form later in the same year (1922) that Grote described the bird from further west. Chapin is the source of the above common name, which derives from its apparent similarity to a flying exclamation mark!

In the field, Exclamatory Whydah is very similar in appearance to Sahel Paradise Whydah, which has led to some confusion. However, near the Malian capital, Bamako, the whydahs are known as *V. interjecta*^{7,27,28}. When a male Exclamatory Whydah in breeding plumage is viewed from the side, the tail looks 3–4 times the length of its wing. Identifications based on this feature suggest that *interjecta* is the widespread species in The Gambia, where the author has seen it Kano and Kiang West National Park.

The bill is grey while the feet are dark grey. In contrast, the female's feet are reddish, as are those of first-year males in non-breeding plumage. Dark grey melanin obscures the red of the adult males. The nape is dark brownish red, as in Sahel Paradise Whydah.

Females are similar in appearance to the latter species, but are greyish brown and not yellowish or buffy above, as in some female Sahel Paradise Whydahs. They also have a light orangy bill and pastel red feet. Wing length is 74–76 mm. Males in non-breeding plumage are like females, but more strongly streaked on the head and back. Their orangy bills and reddish grey feet also resemble their partners' soft parts. Juvenile whydahs of this species are unknown²⁸.

Nestling and young juvenile whydahs are thought to have a mouth like that of their host species, the Red-winged Pytilia *P. phoenicoptera*, with purplish lateral patches and no central black spot on the palate (pers obs)¹⁴. I have raised the young pytilia of all four species in my aviaries or observed them in the field, but have not seen the young whydahs of this or the next species. Songs and calls of the Red-winged Pytilia include a contact call: a sharp *pik* followed by a slurred whistle that rises then falls. Song phrases consist of a double loud descending whistle, a shorter whistle, and then a short buzz. These were also given by a captive Exclamatory Paradise Whydah²⁸ and by males of this whydah in the field at Yankari National Park in Nigeria²⁷.

In south-eastern Nigeria, at Abakaliki near Enugu, Nicolai²⁰ observed paradise whydahs with the Yellow-winged Pytilia *P. hypogrammica* and the whydahs parasitised them in the dry season. He referred to the whydahs as *V. togoensis*, the form of whydah that is associated with this pytilia in Upper Guinea region. However, no photographs or specimens were taken, and the only paradise whydah known from the area is the broader-tailed Exclamatory Whydah (Serle's specimens in AMNH, Tring and the Scottish National Museum), and this was the whydah I saw in eastern Nigeria along the Abong-Baissa road²⁹ where *P. hypogrammica* was the only pytilia species.

Togo Paradise Whydah

Togo Paradise Whydah *V. togoensis* is known only from Sierra Leone east to Ghana and Togo, and is the brood parasite associated in the Upper Guinea region with Yellow-winged Pytilia. However, the pytilia itself occurs from Sierra Leone east to Uganda, and in the more easterly portions of its range (from Nigeria to Zaire and southern Sudan) both this species and the Red-winged Pytilia are associated with the broader-tailed Exclamatory Paradise Whydah *V. interjecta*^{6,8,27}. In 1979 in northern Cameroon I thought I saw narrow-tailed as well as broad-tailed males in areas where both Red-winged and Yellow-winged Pytilia occur²⁷, but in 1992 in the same area I saw only the Exclamatory Paradise Whydahs.

Breeding males are black above, the nape is yellow rather than reddish brown, and the tail is long and narrow. The males are paler below and more yellow (less dark buff) than Exclamatory Paradise Whydahs, from which they differ in the longer and narrower tail, which is much narrower than the body — 22–24 mm (in Exclamatory Paradise and Sahel Paradise Whydahs it is about same width as the body — 32–34 mm). Wing length is similar in the two species (74–78 mm in the Togo Paradise)²⁸. These whydahs are known from a few localities, including the Gambaga escarpment in northern Ghana, Bandama in Cote d'Ivoire, and Kabela and Karina in Sierra Leone.

Females and juveniles are unknown, although a juvenile from Bandama, Cote d'Ivoire, taken at the same time and place as an adult male of this whydah, and where the host Yellow-winged Pytilia is known, is probably this species²⁸. It has unmarked grey plumage as in other paradise whydahs. The bill has a reddish base and dark tip, but the original colours were not noted on the specimen label. Nestling and young juvenile whydahs are thought to have a mouth like that of their host species, which is like Red-winged Pytilia in colour and pattern, with purplish

lateral patches and no black spot on the pinkish palate (pers obs)²⁰.

The contact call of Yellow-winged Pytilia is a *tik* with a short whistle, rising in pitch and sometimes falling at the end, *tik-feew*¹². Other calls I have recorded are a rhythmic *ta-ta-ta-ta* crackling chatter, faster in pitch than in Orange-winged Pytilia (and not heard from Red-winged Pytilia), and a *chick* like that of a firefinch *Lagonosticta* sp alarm call. These are combined in a sequence *chatter—chip—tik-feew* whistle in my captives (often the whistle is prolonged and lacks the sharp *tik* introduction). This is thought to be mimicked by the male whydah in his song while he perches in a tree. Although the pytilia calls are similar to those of Red-winged Pytilia, they differ in detail, and I have not heard the emphatic chatter from Red-winged Pytilia^{12,17}.

Hybrid whydahs, molecular genetics and species of whydahs

Hybrid whydahs are occasionally seen in the field and have been bred in captivity by aviculturists. Several species groups of *Vidua* can interbreed and produce offspring with males in showy plumage, black with a long tail²⁶. Two males at Lochinvar National Park in Zambia were uniformly glossy blue-black in plumage, had a long tail with the four central feathers much longer than the others (shorter than in Paradise Whydahs) and twisted 90° laterally. Both had songs identical to Paradise Whydahs, mimicking the bubbling wheezy songs of Melba Finch on a perch and giving the *whee-hew* calls in flight. The one collected lacked the gloss of Steel-blue Whydah, the central tail feathers were broad (narrower than in Paradise Whydah), wing length was intermediate between the indigobirds and Paradise Whydah, and the wings and feet were black. Because the songs of the hybrids mimicked Melba Finch, the birds were probably reared in a Melba Finch nest and based their songs on those learnt from their foster species, so their mother was a Paradise Whydah and the father was an indigobird. Indigobird males mount uninvited birds, not only female indigobirds and Paradise Whydahs but also sunbirds Nectariniidae and sparrows *Passer*. Females are difficult to identify in the field, although an apparent hybrid was seen at Lochinvar with the two males²⁶.

Other field observations of apparent hybrids have involved birds physically resembling one species but with the mimetic song of a different species^{13,26}. Hybrids when uncommon do not necessarily indicate that the interbreeding birds are conspecific. The ability of mixed-species pairs to form hybrid offspring between species groups indicates behavioural opportunism and a primitive developmental trait that has

been retained and is not necessarily an indication of close species relationships⁹.

Molecular genetic studies indicate that Paradise Whydah and Sahel Paradise Whydah are not each other's closest relatives. Rather, each is more similar to another species of paradise whydah in its geographic region. Paradise is more like *obtusa*, while Sahel Paradise is more like *interjecta*¹⁵. Whether Paradise and Sahel Paradise intergrade in southern Sudan and Ethiopia where their ranges meet is uncertain. Unfortunately, museum skins are few and their tails are tatty. The eastern and western forms of Melba Finch intergrade in Sudan so these appear to be a single species. Although the two paradise whydahs may interbreed and intergrade where their ranges overlap, they do not appear to be a single phylogenetically defined species, insofar as their molecular genetics indicate that they are not each other's closest relatives. This implies that they colonised their host species independently in West Africa and in southern and eastern Africa¹⁵.

Cuckoo Finch

Cuckoo Finch males look like canaries, and they were originally described as a new species of canary. In the dry season the males are in fresh plumage, olive greenish above, including the crown, and unstreaked yellow below. During the rainy season, when they breed, males are worn in plumage, and brighter, paler and more streaked above while the head, especially the forehead and face, is yellow. The feathers of the nape and back lose their dark tips to become yellowish with black shaft streaks. The bill is robust and short, very thick at the base, and black during the rains but pale brown in the dry season. Cuckoo Finches in West Africa are noticeably smaller-billed than those in East and southern Africa.

Adult female Cuckoo Finches are brown above and whitish below but washed rufous on the breast, with areas of brown streaking similar to female Red Bishop *Euplectes orix*. However, Cuckoo Finches have longer tails. The horn-brown bill has a straight not curved outline to the upper culmen, but near the skull the base is angled. The bill is also stubbier, the length being nearly the same as the depth at the nostril, whereas in the bishop it is at least half as long again. In the hand, the robust bill of Cuckoo Finch bites much harder than any bishop can bite! The inside of the upper jaw is thickened halfway in its length, reducing the inside of the mouth by more than half to the size of a large seed, perhaps to hold a seed within the palate groove. This thick lateral area is continuous with a bony ventral protuberance of the jugal bone (unpubl obs)¹⁰, unlike any other finch I have seen

Shaft-tailed
Whydah
V. regia



Straw-tailed
Whydah
V. fischeri



Steel-blue
Whydah
V. hypocherina



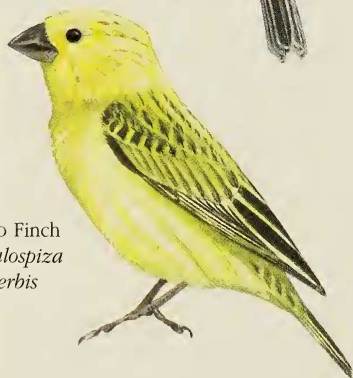
Straw-tailed
Whydah
V. fischeri



Pin-tailed
Whydah
V. macroura



Cuckoo Finch
Anamalospiza
imberbis



except the red-and-black Thick-billed Seed eater *Pyrenestes ostrinus*. The lower jaw also is extremely flattened in its bony skeleton. The bill appears to be designed for cracking and crushing seeds. I watched Cuckoo Finches in a sunflower field near Pretoria, as they perched on stalks, pulled the seeds from the sunflower heads and cracked them open. More commonly they feed on grass seeds both fallen and on the stems⁶. Cuckoo Finches occur in flocks both in the dry season and during the rains, when singing males also space out and sing in wet grass and marshes, as at Belvedere marsh at Harare in Zimbabwe, and Lochinvar National Park in Zambia.

The nestlings have unmarked flesh-coloured mouth linings and are distinctive in the yellow interior to the broad edge of the upper and lower bill⁵. Juveniles are tawny brown, darker above and not heavily streaked, resembling the juvenile plumage of their host species such as Winding Cisticola *Cisticola galactotes*. The juvenile finches have rows of blackish scale-like tips to the crown feathers, and brown bills, as thick as the adults'.

Male display behaviour includes wing-flicking or fanning to a female, like a male weaver *Ploceus* displaying at its nest or a Straw-tailed Whydah displaying on its perch to a female (pers obs)³⁶. The song is not well known and consists of chatters, swizzles and twitters⁶. There is no suggestion of song mimicry of the host species.

Cuckoo Finches are brood parasites on the grass warblers *Cisticola* and *Prinia*. Hosts that raise their young are Desert Cisticola *Cisticola aridula*, Wing-snapping Cisticola *C. ayresii*, Pectoral-patch Cisticola *C. brunnescens*, Singing Cisticola *C. cantans*, Rattling Cisticola *C. chiniana*, Winding Cisticola *C. galactotes*, Fan-tailed Cisticola *C. juncidis* and Tinkling Cisticola *C. tinniens*, and Black-chested *Prinia* *Prinia flavicans* and Tawny-flanked *Prinia* *P. subflava*^{6,34,35}. Most of these live in wet grassy areas. These hosts feed their young with entire insects, rather than regurgitating seeds as do estrildid finches, weavers and euplectine finches, and the young are fed differently than are the young whydahs and indigobirds¹⁰. The host young do not survive in a nest where the Cuckoo Finch fledges and are apparently starved through competition, though two Cuckoo Finches sometimes survive to fledge³⁴. Fledged young in the care of foster parents call *ticker...ticker* in the manner of adults, the foster parent responds to these calls and feeds the changeling, and the young do not mimic the begging calls of their hosts³⁵, unlike the whydahs and indigobirds. The parasites breed during the rains along with the warblers.

Relationships of the whydahs and Cuckoo Finch

The whydahs have usually been considered to be related to the Ploceidae or the Estrildidae finches, while the Cuckoo Finch has been thought to be independently derived from the ploceid weaver finches^{10,32}, and the alternate names 'Cuckoo-weaver' and 'Parasitic Weaver' imply this close relationship. However, there are anatomical similarities, including the shape of the vomer and the unpneumatized windows in the adult skull, that indicate a common ancestry between the Cuckoo Finch and the whydahs (unpubl. obs)^{6,10}. Preliminary molecular genetics studies on mtDNA sequences also indicate that the Cuckoo Finch and the viduine whydahs and indigobirds are each others' closest relatives (M.D. Sorenson and R.B. Payne, unpubl. obs) and are only distantly related to other finches. This observation suggests that brood parasitism evolved only once in the finches, and that it evolved long ago.

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